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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,001	10/29/2003	Nobuhiro Nishiyama	204552030600	5307

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MORRISON & FOERSTER LLP  
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MCLEAN, VA 22102

EXAMINER
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NGUYEN, TUAN N

ART UNIT	PAPER NUMBER
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2828

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/09/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/695,001

Applicant(s)

NISHIYAMA ET AL.

Examiner

Tuan N. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13 and 14 is/are rejected.
- 7) ☒ Claim(s) 11, 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of 35 U.S.C. 102(b) which forms the basis for all obviousness rejections set forth in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being unpatentable over Lebby et al. (US 5838703).

With respect to claim 1, Lebby et al. '703 shows and discloses a semiconductor laser assembly (**TITLE**) comprising: a substrate including a first mount surface and a second mount surface (*Fig 1: a first and second mount surfaces where photodiode 16 and laser 14 mounted on substrate 13*); a submount mounted on the first mount surface of the substrate (*Fig 1: a first submount under laser 14 mounted on first mount surface of substrate 13*); a laser diode mounted on the submount and having at least one light emission point and an electrode (*Fig 1: 14 laser with light emission mounted on submount with an electrode where metal wire 26 connecting to*); and a monitoring photodiode mounted on the second mount surface of the substrate and having a light-receiving surface which receives light emitted from the light emission point (*Fig 2: 48 photodiode receiving light from laser mounted on second mount surface*), and a relay electrode connected to the electrode of the laser diode by a metal wire (*Fig 1: a relay electrode metal wire 26 connected to the laser*).

With respect to claims 2, 3 Lebby et al. '703 shows wherein a height of the first mount surface in a direction normal to an upper surface of the substrate is higher than that of the second

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mount surface (*Fig 1: 14, 16*) and the metal wire is disposed approximately consistent with an optical axis of the laser diode.

With respect to claim 4 Lebby et al. '703 shows wherein the light-receiving surface of the monitoring photodiode is located approximately lower than the light emission point of the laser diode (*Fig 1: 14, 16*).

With respect to claim 5 Lebby et al. '703 shows the first and second mount surfaces of the substrate and a laser diode mount surface of the submount are approximately parallel to one another (*Fig 1: 14, 16*).

With respect to claim 6 Lebby et al. '703 shows the laser diode mount surface of the submount is *approximately at the same height* as the light-receiving surface of the monitoring photodiode (*Fig 1: 14, 16*)(*Fig 2: 42*).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or non-obviousness.
4. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebby et al. (US 5838703).

With respect to claim 7, the claim further requires wherein the submount is made of an insulating material having higher heat conductivity than the monitoring photodiode. Lebby et al. '703 shows and discloses the above, but Lebby et al. '703 did not discretely disclose the submount heat conductivity of the laser is higher than the monitor photodiode. It has been held that omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art, in this case it is well known in the art that laser elements frequently mounted on high heat conductor element to reduce heat generate from the laser to increase its operational life.

With respect to claim 8, the claim further requires wherein the submount has a length in a direction of an optical axis of the laser diode that is approximately equal to a resonator length of the laser diode. Lebby et al. '703 did not discretely disclose the submount has a length approximately equal to the laser resonator length. It has been held where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

With respect to claims 9, 10 the claim further requires wherein at least one additional laser diode is mounted on the submount, said additional laser diode also has at least one light emission point and an electrode, and the monitoring photodiode is provided with an additional relay electrode connected to the electrode of said additional laser diode by a metal wire. It has

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been held that mere duplication of the essential working parts of a device involves only routine skill in the art, in this case having multiple light emission laser in the same system to increase its power output or increase the system operation ranges.

5. Claims 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebby et al. (US 5838703) in view of PRIOR ART (Fig 7a).

With respect to claim 13, and 14 Lebby et al. '703 discloses the above, the claims further requires wherein the substrate is composed of a metal lead and the relay metal wire electrode is connected to the substrate. PRIOR ART (Fig 7a: 205c) shows a relay metal wire lead is connecting to substrate. It would have been obvious to one of ordinary skill in the art to provide Lebby '703 the element as taught or suggested by PRIOR ART (Fig 7a: 205c) to ground the laser system for operation stability.

***Allowable Subject Matter***

6. Claims 11,12 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The references of the record fail to teach or suggest:

**Claim 11:**

wherein two separated metal layers are disposed on the submount, and the laser diode is mounted on the submount through the metal layers in a junction-down manner.

**Response to Argument/**

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7. Applicant's remarks filed on 12/04/2006 been fully considered but they are not persuasive. On pages 1-2, the Applicant pointing out Lebby fails to disclose "a submount mounted on the first mount surface of the substrate and a laser diode mounted on the substrate", the Applicant continue to point out "col. 3, line 23,... the item 14 refers to a vertical VCSEL which comprises a ridge an active region", and continued to submit that the Examiner misinterpreted the active region as a submount, *by redraw and re-label the figure 1 that was not originally shown by Lebby*. The Applicant refers to figure 2 embodiment to cite #46 is correlated to Figure 1, therefore concluded that the element under Fig 1: #14 is the active layer rather than a submount. The examiner stand the area under the laser is a submount, the Figure 1 and Figure 2 are two different embodiments that consist different element as define by the specification. This can be further shown by looking at Figure 2: 48, the photodiode #48 has a submount under it, which does not exist/shown under Fig 1: 16.

On page 3, the Applicant further argues Lebby does not disclose or suggest "a relay electrode to the electrode of the laser diode by a metal wire" and further cites "although Lebby may disclose a metal wire, Lebby does not disclose or suggest a relay electrode connected to a wire as recited to in claim 1." The examiner stands, emission of VCSEL are powered via the electrodes, in this case the metal wire shown/disclose provides current/voltage to the VCSEL relay electrode to generate a emission.

Correction to typographical error "103(a)" has been corrected as pointed out by the Applicant.

***Conclusion***

8. The prior art made of record and relied upon is considered pertinent to applicant's disclosures.

9. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP 706.07. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

***Communication Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

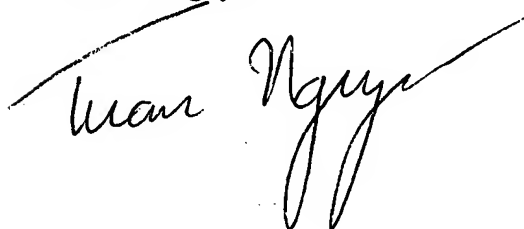
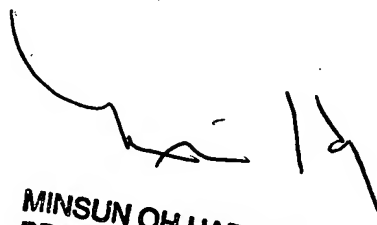
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan N. Nguyen

A handwritten signature in black ink, appearing to read 'Tuan Nguyen', with a long horizontal line extending from the start of the signature.A handwritten signature in black ink, appearing to read 'Minsun Oh Harvey', with a long horizontal line extending from the start of the signature.

**MINSUN OH HARVEY  
PRIMARY EXAMINER**